1. A demodulating logarithmic amplifier, comprising:

a full wave rectifier, having an input for receiving a waveform signal and an output for providing a rectified signal that is proportional to an envelope of the waveform signal;

a plurality of serially coupled amplifier stages, each having an input and an output, wherein the input of a first amplifier stage is coupled to the full wave rectifier to receive the rectified signal; and

a plurality of voltage-to-current converters, each having an input and an output, the input coupled to an output of a respective one of the plurality of serially coupled amplifier stages;

wherein the outputs of each of the plurality of voltage-to-current converters are coupled together.

2. The demodulating logarithmic amplifier as described in claim 1, further comprising a voltage-to-current converter having an input coupled to the output of the full wave rectifier, and wherein an output of said converter is coupled to the outputs of each of the plurality of voltage-to-current converters.

3. The demodulating logarithmic amplifier as described in claim 1, wherein the full wave rectifier comprises a linear full wave rectifier.

4. The demodulating logarithmic amplifier as described in claim 1, wherein the full

wave rectifier comprises a squaring cell.

5. The demodulating logarithmic amplifier as described in claim 1, wherein each of the amplifier stages comprises a limiting amplifier stage.

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6. The demodulating logarithmic amplifier as described in claim 1, wherein the coupled voltage-to-current output is a logarithmic function of the rectified signal.

7. A demodulating logarithmic amplifier, comprising:

means for rectifying, having an input for receiving a waveform signal and an output for providing a rectified signal that is proportional to an envelope of the waveform signal;

a first means for amplifying the rectified signal, coupled to the output of the means for rectifying;

first converting means, coupled to the first means for amplifying, for converting the amplified signal from voltage to current;

second through Nth means for amplifying, where N is an integer greater than 2, serially coupled to the first means for amplifying and to each other;

second through Nth converting means, where N is an integer greater than 2, coupled to the respective second through Nth means for amplifying, for converting the respective amplified signals from voltage to current;

means for summing all of the converted current signals to provide an amplified current output.

8. The demodulating logarithmic amplifier as described in claim 7, further comprising an additional converting means having an input coupled to the output of the means for rectifying and having an output coupled to the means for summing, for converting the rectified signal from voltage to current.

9. The demodulating logarithmic amplifier as described in claim 7, wherein the

means for rectifying comprises a linear full wave rectifier.

10. The demodulating logarithmic amplifier as described in claim 7, wherein the means for rectifying comprises a squaring cell.

11. The demodulating logarithmic amplifier as described in claim 7, wherein each of the means for amplifying comprises a limiting amplifier stage.

12. The demodulating logarithmic amplifier as described in claim 7, wherein each of the means for converting comprises a voltage-to-current converter.

13. The demodulating logarithmic amplifier as described in claim 7, wherein the amplified current output is a logarithmic function of the rectified signal.

14. A demodulating logarithmic amplification method, comprising:

a) rectifying a full wave signal to a signal that is proportional to an envelope of the full wave signal;

b) sequentially amplifying the rectified signal through a plurality of serially coupled limiting amplifier stages;

c) after each sequential amplification by each of the plurality of amplifier stages, converting the amplified signal into a current signal representative of each sequential amplification; and

d) summing all of the current signals to provide an amplified current output.

15. The demodulating logarithmic amplification method as described in claim 14, wherein the amplified current output is a logarithmic function of the rectified full wave signal.

16. The demodulating logarithmic amplification method as described in claim 14, wherein (a) comprises rectifying with a linear full wave rectifier.

17. The demodulating logarithmic amplification method as described in claim 14, wherein (a) comprises rectifying with a squaring cell.

18. The demodulating logarithmic amplification method as described in claim 14, wherein (c) comprises converting using a voltage-to-current converter.